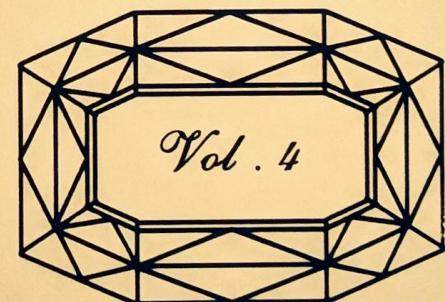


The Book of Gem Cuts



CONTENTS

Book of Gem Cuts, Volume IV

INTRODUCTION

FACETED gemstones continue to captivate people the world over. For those who fashion brilliant gems from rough stones is the enjoyment of creating beauty from what looks like a chunk of colored glass. Mastery of the art lies not in the complexity of the cut, but in the beauty of the gem created.

As gem cutters become proficient at using cutting patterns they soon recognize that facets may be combined in a number of ways to form new designs. The crown cuts from one pattern may be combined with the pavilion cuts from another. Facets may be split, or break facets may be added. A complex pattern intended for a large stone may be simplified for a small stone. There are endless combinations of planes that may be arranged to form geometric designs.

While the faceting designs of Volume IV are unique in their own right, it will be recognized that several may be modified, without difficulty, to give a new designs. There is but one rule to follow - To capture maximum brilliance main facets must be present. The angles for main facets are determined by the critical angle of the material used, which is a function of refractive index. The brilliance of a gem comes from light reflected by the main facets, predominantly, the main facets of the pavilion.

This book is dedicated to the memory of Bob Livingston. With the exception of the Lone Star Cut, all designs were created by Bob, or originated with one of his students.

We take great pleasure in presenting Volume 4 of *The Book of Gem Cuts*



MDR Manufacturing, Inc.

The home of Master faceting instruments

**P.O. Box 6951
Kingwood, Texas 77325**

Phone: (713) 358-3027

PHYSICAL PROPERTIES
CONTENTS
Book of Gem Cuts, Volume IV

GENERAL ROCK	REFRACTIVE	CRITICAL	MAIN ANGLES	SUBSTANTIAL	REFRACTIVE	CRITICAL	MAIN ANGLES			
	INDEX	ANGLE			INDEX	ANGLE				
PHYSICAL PROPERTIES										
POLISHING RECOMMENDATIONS										
ADJUSTING MAIN ANGLES										
<u>Design</u>										
Actinolite	1.610 - 1.640	38.6			1.650 - 1.680	49.17	42			
Anatase	2.493 - 2.553	29			2.793 - 2.718	56.02	42			
Andalusite	1.627 - 1				1.697 - 1.720	59.09	42			
Apate	1.632				1.581	40.98	42			
Apophyllite	1.545				1.682	38.92	42			
Augite	1.570 - 1.600	38			1.731	35.73	42			
Axinite	1.678 - 1.689	36.8			1.640 - 1.640	33.46	42			
Azurite	1.700 - 1.830	35.53	37		1.683 - 1.910	37.03	42			
Banite	1.634	37.08	43		1.680 - 1.520	42.50	42			
Bertrandite	1.677 - 1.684	34.71	37		1.600	43.80	41			
Beryl	1.795				1.64 - 1.620	37.30	42			
Beryllonite	1.552				1.64 - 1.620	37.30	42			
Brazianite	1.561				1.65 - 1.648	36.25	42			
Calcite	1.608				1.64 - 1.623	40.31	42			
Canaryite	1.626				1.629	38.80	42			
Corborundum	2.650				2.650	32.50	41			
Cassiterite	1.937 - 2				1.937	39.17	42			
Celsian	1.612				1.612	31.57	42			
Chryscoberyl	1.745				1.625	42.25	42			
Crysocolla	1.420				1.597	35.97	42			
Corundum	1.780				1.620	32.80	42			
Crocrite	2.310 - 2				2.310	31.50	42			
Diamond	1.630 - 1.638				1.630	37.25	42			
Dolomite	1.622 - 1				1.622	34.00	42			
Diamond	2.419				2.419	30.00	42			
Dolomite	1.671 - 1				1.671	38.50	42			
Dolomite	1.644 - 1.698				1.644 - 1.698	38.40	42			
Dolomite	1.620 - 1.670				1.620 - 1.670	35.20	42			
Dolomite	1.629 - 1.679				1.629 - 1.679	35.20	42			
Dolomite	1.64 - 1.673	37.33	43	35						
Feldspar	1.581 - 1.593	41.2	42	43	Zircon (P)	1.922 - 1.991	31.38	42		
		40.18			Zircon (C)	1.925 - 1.991	31.38	42		
Fluorite	1.435	44.22	41	45	Zircon (O)	1.810 - 1.840	33.53	42		
Garnet:										
Almandite	1.660	31.75	37	42						
Andradite	1.660	31.95	37	42						
Grasulite	1.735	35.00	37	42						
Pyrope	1.745	34.95	37	42						
Rhodolite	1.782	34.62	37	42						
Sosavite	1.803	33.75	37	42						
Tourmalite	1.630 - 1.670	39.12	37	42						

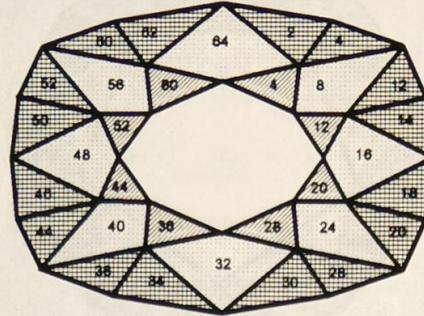
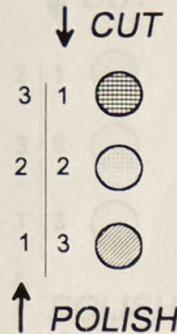
Crucial angles are determined from the lowest refractive index value.

RECTAGON CUT

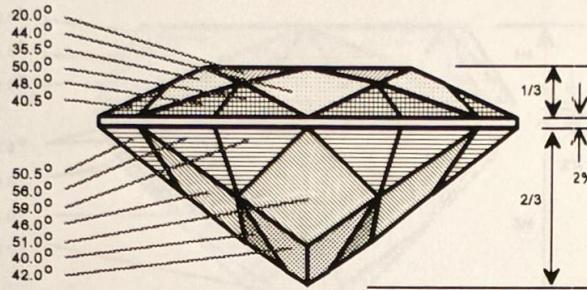
B. Livingston

No. 1

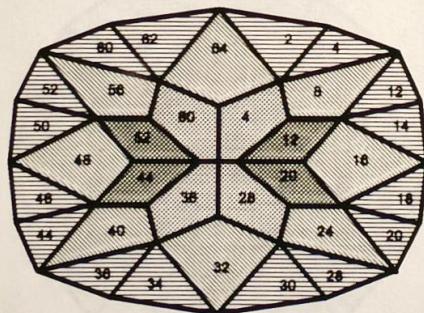
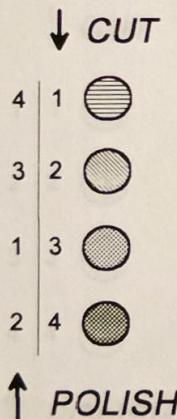
CROWN



SIDE VIEW



PAVILION



64 Index - Angles for Quartz
Ratio of Length to Width - 1.33:1

SHAPE GEM

Shape girdle at 90° by grinding in three seps. First, grind into a rectangular shape, indexing 64-32, 16-48. Second, grind eight facets indexing 62-02, 30-34, 14-18, 46-50. Third, grind eight facets at 04-60, 28-36, 12-20, 44-52.

ORDER OF CUTTING - Crown

GRIND 1st:

- Four facets at 50.0° indexing 2-62, 30-34.
- Four facets at 42.0° indexing 14-18, 46-50.
- Four facets at 48.0° indexing 4-60, 28-36.
- Four facets at 40.5° indexing 12-20, 44-52.

GRIND 2nd:

- Two facets at 44.0° indexing 64-32.
- Two facets at 38.0° indexing 16-48.
- Four facets at 35.5° indexing 8-24-40-56.

GRIND 3rd:

- Four facets at 20.0° indexing 4-60, 28-36.
- Four facets at 23.5° indexing 12-20, 44-52.

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st:

- Four facets at 59.0° indexing 2-62, 30-34.
- Four facets at 51.0° indexing 14-18, 46-50.
- Four facets at 56.0° indexing 4-60, 28-36.
- Four facets at 50.5° indexing 12-20, 44-52.

GRIND 2nd:

- Two facets at 51.0° indexing 64-32.
- Two facets at 46.5° indexing 16-48.
- Four facets at 46.0° indexing 8-24-40-56.

GRIND 3rd:

- Four facets at 42.0° indexing 4-60, 28-36.

GRIND 4th:

- Four facets at 40.0° indexing 12-20, 44-52.
- (Will meet at point if angle decreased.)

See polishing order on left, using same angles and indices as with grinding.

TABLE

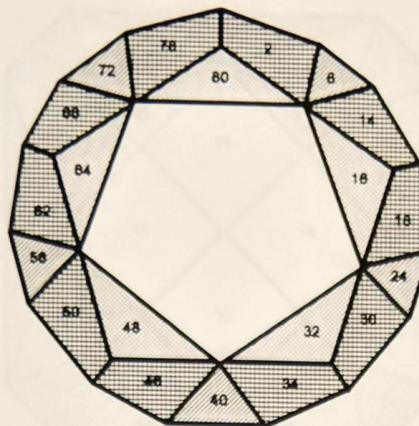
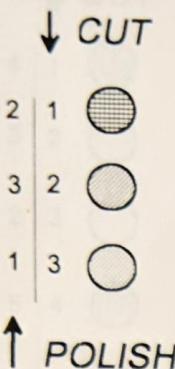
Cut and polish table in 45° dop holder. Table should be about 50% of girdle width.

LONE STAR CUT

Adopted by the Texas Legislature as the state gemstone cut in 1977

No. 2

CROWN



80 Index - Angles for Quartz

SHAPE GEM

Shape girdle in two steps. First, grind at 90° indexing 2-14-18-30-34-46-50-62-66-78. Second, grind at 8-24-40-56-72. Note that the second set of cuts are not as wide as the first set..

ORDER OF CUTTING - Crown

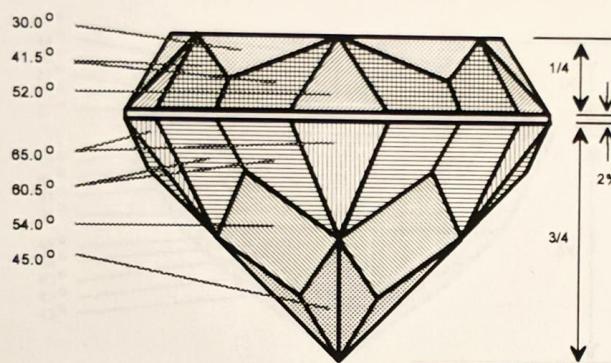
GRIND 1st: Ten facets at 41.5° indexing 2-14-18-30-34-46-50-62-66-78.

GRIND 2nd: Five facets at 52° indexing 8-24-40-56-72. (Adjust angle if necessary.)

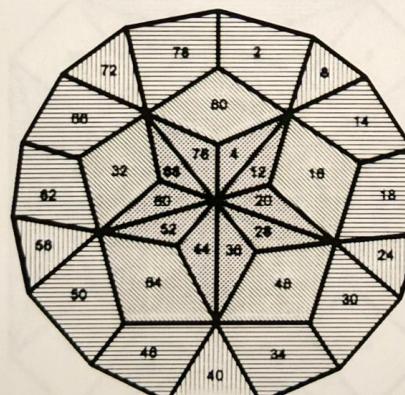
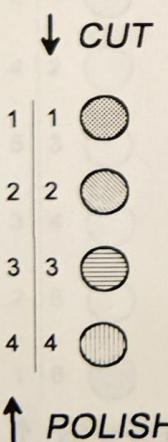
GRIND 3rd: Five facets at 30° indexing 80-16-32-48-64.

See polishing order on left, using same angles and indices as with grinding.

SIDE VIEW



PAVILION



See polishing order on left, using same angles and indices as with grinding.

TABLE

Cut and polish table in 45° dop holder. Grind until table meets point of girdle facets (CG-2nd). Table should be about 60% of girdle width.

SQUARE DANCE CUT

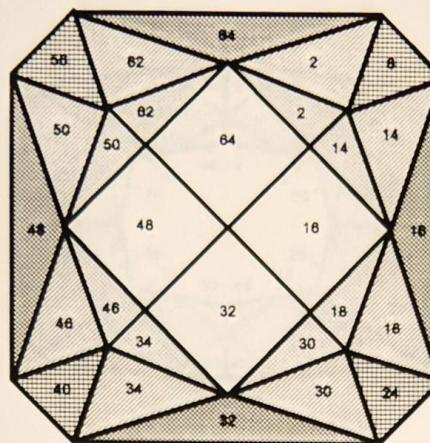
M. Parke

No. 3

CROWN

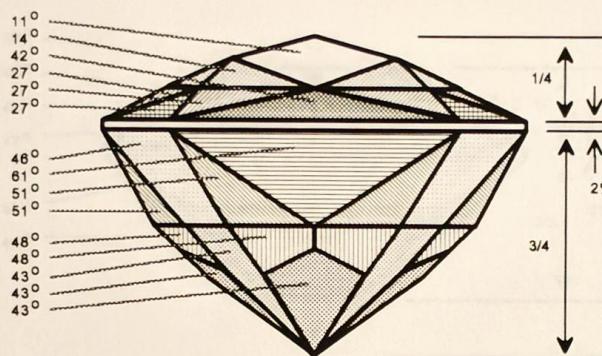
↓ CUT

4	1	●
3	2	○
2	3	○
5	4	●
1	5	○



↑ POLISH

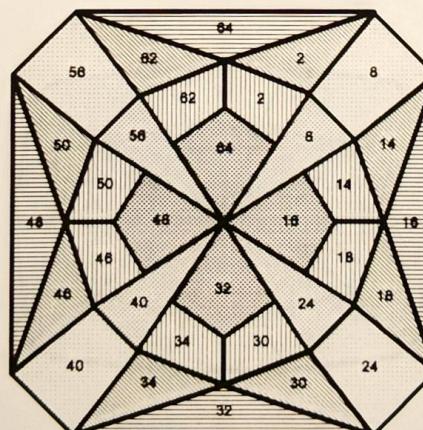
SIDE VIEW



↓ CUT

6	1	●
4	2	●
5	3	○
3	4	○
2	5	○
1	6	●

PAVILION



↑ POLISH

64 Index - Angles for Quartz

SHAPE GEM

Shape girdle by grinding at 90° Indexing 64-32, 16-48, 8-24-40-56.

ORDER OF CUTTING - Crown

GRIND 1st: Four facets at 42° indexing 64-16-32-48.

GRIND 2nd: Eight facets at 27° indexing 2-62, 14-18, 30-34, 46-50.

GRIND 3rd: Eight facets at 14° indexing 2-62, 14-18, 30-34, 46-50.

GRIND 4th: Four facets at 27° indexing 8-24-40-56.

GRIND 5th: Four facets at 11° indexing 64-16-32-48.

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Four facets at 61° indexing 64-16-32-48.

GRIND 2nd: Eight facets at 51° indexing 2-62, 14-18, 30-34, 46-50.

GRIND 3rd: Four facets at 46° indexing 8-24-40-56.

GRIND 4th: Eight facets at 48° indexing 2-62, 14-18, 30-34, 46-50.

GRIND 5th: Four facets at 43° indexing 8-24-40-56.

GRIND 6th: Four facets at 43° indexing 64-16-32-48.

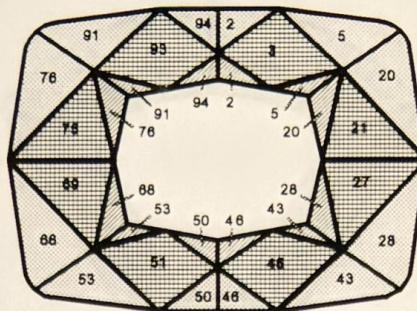
See polishing order on left, using same angles and indices as with grinding.

MIXED CUSHION CUT

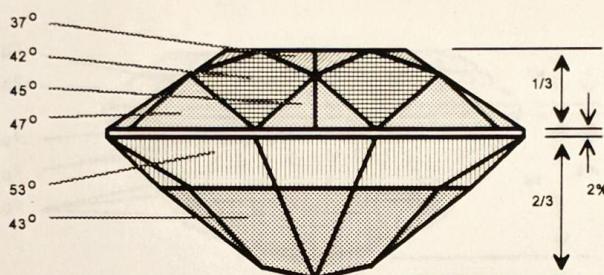
D. Orsillo

No. 4

CROWN

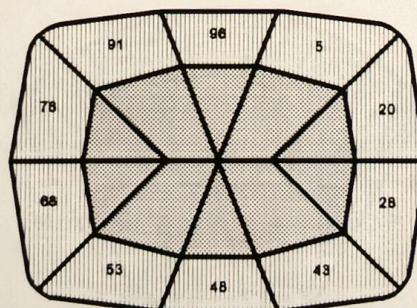


SIDE VIEW



PAVILION

↓ CUT
↑ POLISH



96 Index - Angles for Quartz Ratio of Length to Width - 1.4:1

SHAPE GEM

Shape girdle by grinding at 90° Indexing 3-93, 45-51, 21-27, 69-75. Round off all angles and polish (89-1/2 $^\circ$).

ORDER OF CUTTING - Crown

GRIND 1st: Eight facets at 42° indexing 3-93, 45-51, 21-27, 69-75.

GRIND 2nd: Twelve facets at 37° indexing 2-94, 5-91, 50-46, 43-53, 20-28, 68-76.

GRIND 3rd.

Four facets at 45° indexing 2-94, 46-50.

Four facets at 47° indexing 5-91, 43-53.

Four facets at 47° indexing 39-41, 49-51.

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Ten facets at 43° indexing
96-48, 5-91, 43-53, 20-28, 68-76.

GRIND 2nd: Ten facets at 53° indexing
96-48 5-91 43-53 20-28 68-76

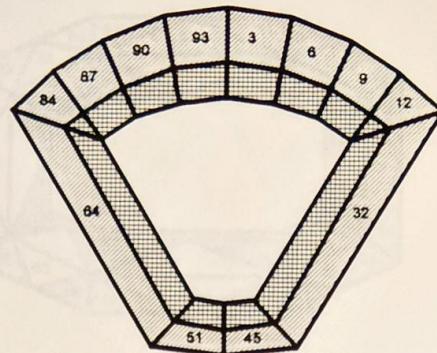
See polishing order on left, using same angles and indices as with grinding.

TABLE F

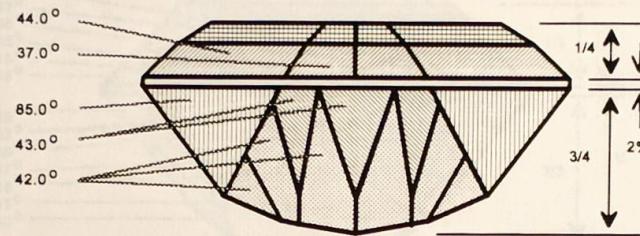
Cut and polish table in 45° dop holder.
Table should be about 50% of girdle width.

CROWN

↓ CUT
2 | 1
1 | 2
↑ POLISH

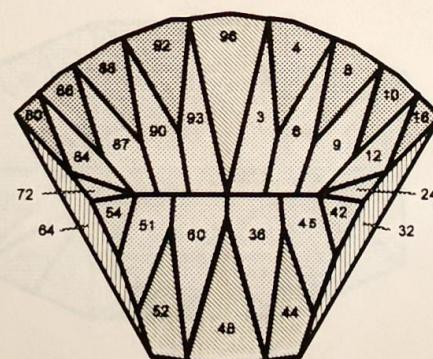


SIDE VIEW



PAVILION

↓ CUT
1 | 1
2 | 2
3 | 3
4 | 4
↑ POLISH



96 Index - Angles for Quartz
Ratio of Length to Width - 0.9:1
(Stone is wider than longer.)

SHAPE GEM

Shape girdle by grinding at 90° Indexing 64-32; 51-45; 3-93, 6-90, 9-87, 12-84.

ORDER OF CUTTING - Crown

GRIND 1st:

Eight facets at 37.0° indexing 3-93, 6-90, 9-87, 12-84.

Two facets at 44.0° indexing 64-32.

Two facets at 37.0° indexing 45-51.

GRIND 2nd:

Eight facets at 12.0° indexing 3-93, 6-90, 9-87, 12-84.

Two facets at 19.0° indexing 64-32.

Two facets at 12.0° indexing 45-51.

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st:

Twelve facets at 42.0° indexing 3-93, 6-90, 9-87, 12-84, 45-51, 36-60.

Four facets at 42.0° indexing 24-72, 42-54.

GRIND 2nd: Four facets at 43.0° indexing 44-48-52; 96.

GRIND 3rd: Eight facets at 43.5° indexing 4-92, 8-88, 10-86, 16-80.

GRIND 4th: Two facets at 85.0° indexing 32-64.

See polishing order on left, using same angles and indices as with grinding.

TABLE

Cut and polish table in 45° dop holder. Table should be about 60% to 65% of girdle width.

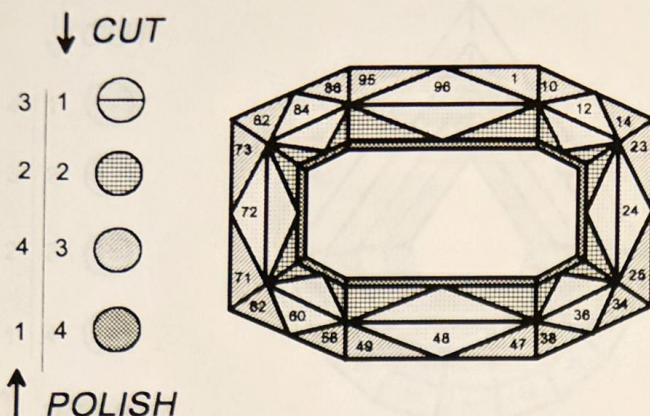
NOTE: Because of the unique shape, adjustment of pavilion girdle facets (GR-3 & GR-4) should be anticipated.

COMBO CUT

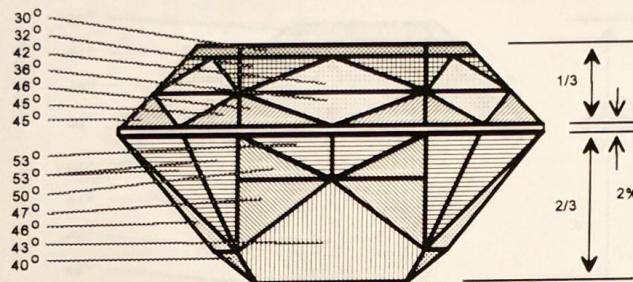
S. Dunham

No. 6

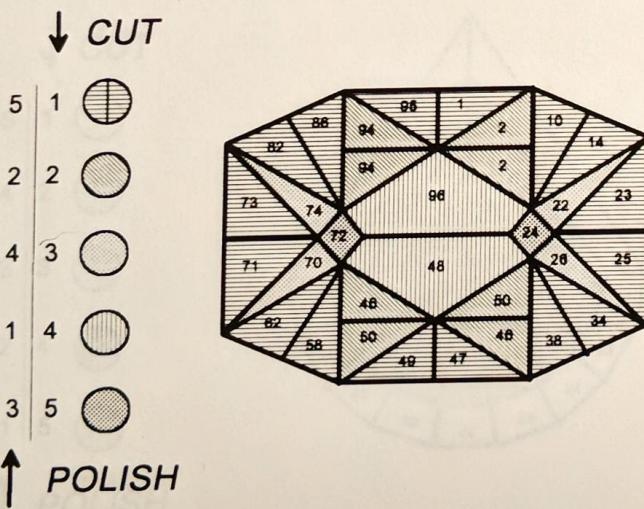
CROWN



SIDE VIEW



PAVILION



96 Index - Angles for Quartz
Ratio of Length to Width - 1.5:1

SHAPE GEM

Shape girdle by grinding at 90° Indexing 96-48, 24-72; 12-36-60-84.

ORDER OF CUTTING - Crown

GRIND 1st: Horizontal Split Cuts

Eight facets at 42° indexing 96-48, 24-72; 12-36-60-84.

Eight facets at 36° indexing 96-48, 24-72; 12-36-60-84.

GRIND 2nd: Sixteen facets at 32° indexing 95-1, 47-49, 23-25, 71-73; 10-14, 34-38, 58-62, 82-86.

GRIND 3rd:

Four facets at 46° indexing 95-1, 47-49.

Twelve facets at 45° indexing 23-25, 1-73; 10-14, 34-38, 58-62, 82-86.

GRIND 4th: Eight facets at 30° indexing 96-12-24-36-48-60-72-84.

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Vertical Split Cuts

Eight facets at 53° indexing 96-48-24-72; 12-36-60-84. Recut with Sixteen facets at 53° indexing 1-95, 47-49, 23-25, 71-73; 10-14, 34-38, 58-62, 82-86.

GRIND 2nd:

Four facets at 50° indexing 94-2-46-50.

Four facets at 47° indexing 94-2-46-50.

GRIND 3rd: Four facets at 46° indexing 22-26-70-74.

GRIND 4th: Two facets at 43° indexing 96-48.

GRIND 5th: Two facets at 40° indexing 24-72.

See polishing order on left, using same angles and indices as with grinding.

TABLE

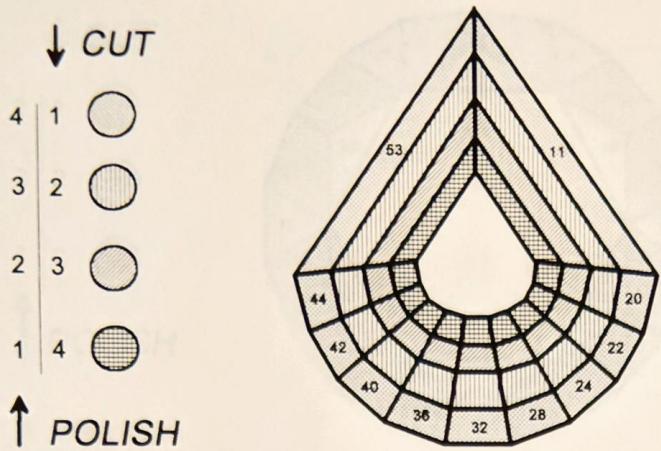
Cut and polish table in 45° dop holder. Table should be about 60% of girdle width.

FAN DROP CUT

H. Kyoko

No. 7

CROWN



64 Index - Angles for Quartz
Ratio of Length to Width - 1.5:1

SHAPE GEM

Shape girdle by grinding at 90° Indexing 53-11, 20-44, 22-42, 24-40, 28-36, 32.

ORDER OF CUTTING - Crown

GRIND 1st: Eleven facets at 50° indexing 53-11, 20-44, 22-42, 24-40, 28-36, 32.

GRIND 2nd: Eleven facets at 40° indexing 53-11, 20-44, 22-42, 24-40, 28-36, 32.

GRIND 3rd: Eleven facets at 31° indexing 53-11, 20-44, 22-42, 24-40, 28-36, 32.

GRIND 4th: Eleven facets at 22° indexing 53-11, 20-44, 22-42, 24-40, 28-36, 32.

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Eleven facets at 54° indexing 53-11, 20-44, 22-42, 24-40, 28-36, 32.

GRIND 2nd: Eleven facets at 51° indexing 53-11, 20-44, 22-42, 24-40, 28-36, 32.

GRIND 3rd: Eleven facets at 48° indexing 53-11, 20-44, 22-42, 24-40, 28-36, 32.

GRIND 4th: Eleven facets at 45° indexing 53-11, 20-44, 22-42, 24-40, 28-36, 32.

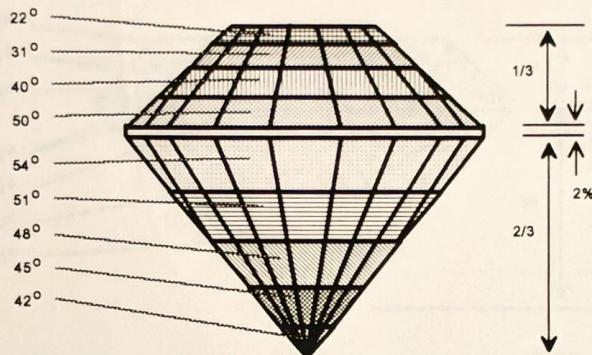
GRIND 5th: Eleven facets at 42° indexing 53-11, 20-44, 22-42, 24-40, 28-36, 32.

See polishing order on left, using same angles and indices as with grinding.

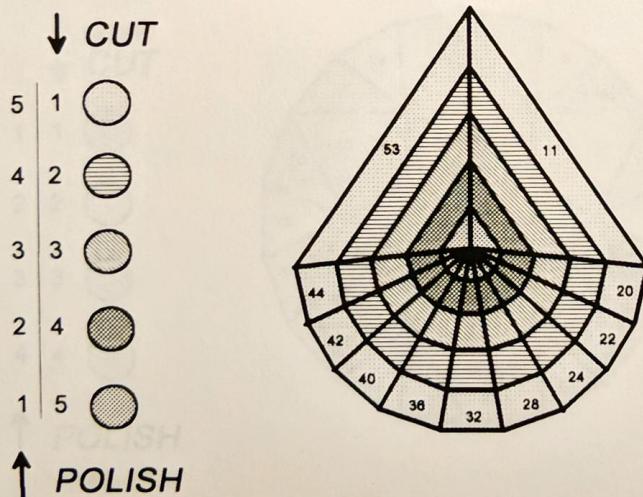
TABLE

Cut and polish table in 45° dop holder. Table should be about 40% of girdle width.

SIDE VIEW



PAVILION



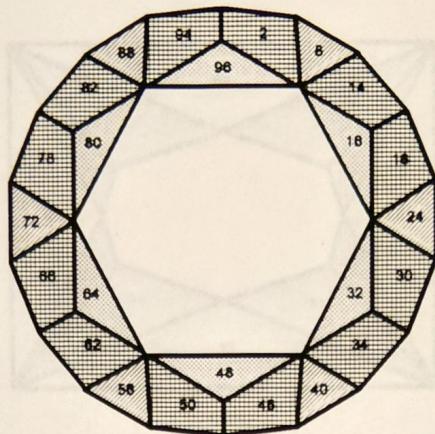
DAVID'S DEEP STAR CUT

B. Livingston

No. 8

CROWN

↓ CUT
2 1
3 2
1 3
↑ POLISH



96 Index - Angles for Quartz

SHAPE GEM

Grind eighteen facets at 90° indexing 2-8-14-18-24-30-34-40-46-50-56-62-66-72-78-82-88-94.

ORDER OF CUTTING - Crown

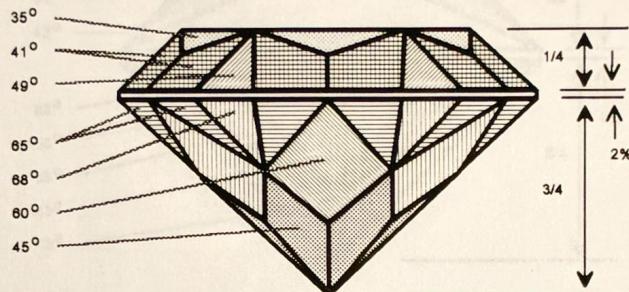
GRIND 1st: Twelve facets at 41° indexing 2-14-18-30-34-46-50-62-66-78-82-94.

GRIND 2nd: Six facets at 35° indexing 96-16-32-48-64-80.

GRIND 3rd: Six facets at 49° indexing 8-24-40-56-72-88.

See polishing order on left, using same angles and indices as with grinding.

SIDE VIEW



ORDER OF CUTTING - Pavilion

GRIND 1st: Six facets at 45° indexing 8-24-40-56-72-88.

GRIND 2nd: Six facets at 60° indexing 96-16-32-48-64-80. The break facets are ground until "star" occupies 50% to 60% of stone diameter.

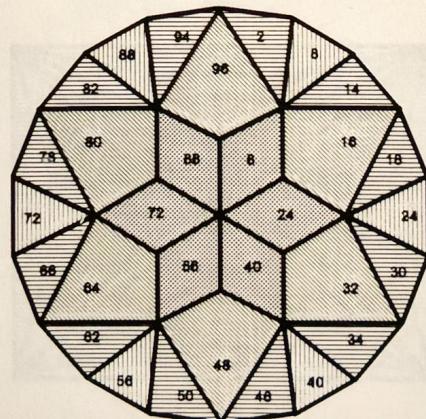
GRIND 3rd: Twelve facets at 65° indexing 2-14-18-30-34-46-50-62-66-78-82-94.

GRIND 4th: Six facets at 68° indexing 8-24-40-56-72-88.

See polishing order on left, using same angles and indices as with grinding.

PAVILION

↓ CUT
1 1
2 2
3 3
4 4
↑ POLISH



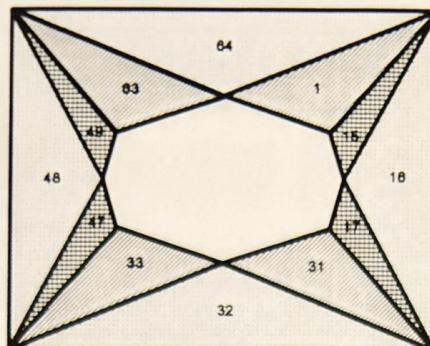
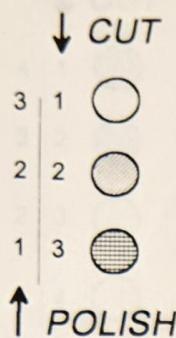
Cut and polish table in 45° dop holder. Grind until table meets point of girdle facets (CG-2). Table should be about 60% of girdle width.

QUADRA BRILL CUT

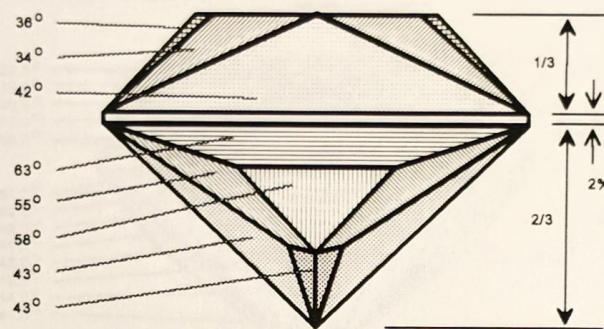
B. Livingston

No. 9

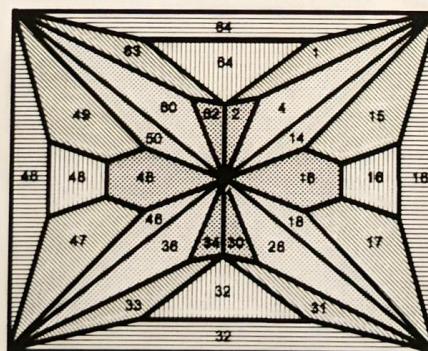
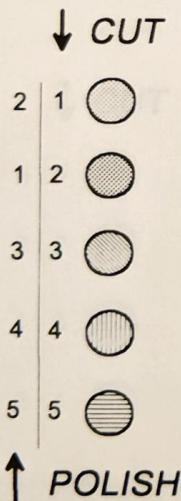
CROWN



SIDE VIEW



PAVILION



64 Index - Angles for Quartz
Ratio of Length to Width - 1.25:1

SHAPE GEM

Shape girdle by grinding at 90° Indexing 64-32, 16-48.

ORDER OF CUTTING - Crown

GRIND 1st: Four facets at 42° indexing 64-16-32-48.

GRIND 2nd: Four facets at 34° indexing 1-31-33-63.

GRIND 3rd: Four facets at 36° indexing 17-17-47-49.

ORDER OF CUTTING - Pavilion

GRIND 1st:

Four facets at 43° indexing 4-28-36-60.

Four facets at 43° indexing 14-18-46-50.

GRIND 2nd:

Four facets at 43° indexing 2-62, 30-34.

Two facets at 43° indexing 16-48.

GRIND 3rd:

Four facets at 55° indexing 1-31-33-63.

Four facets at 45° indexing 15-17-47-49.

GRIND 4th:

Two facets at 58° indexing 64-32.

Two facets at 45° indexing 16-48.

GRIND 5th:

Two facets at 63° indexing 64-32.

Two facets at 63° indexing 16-48.

See polishing order on left, using same angles and indices as with grinding.

TABLE

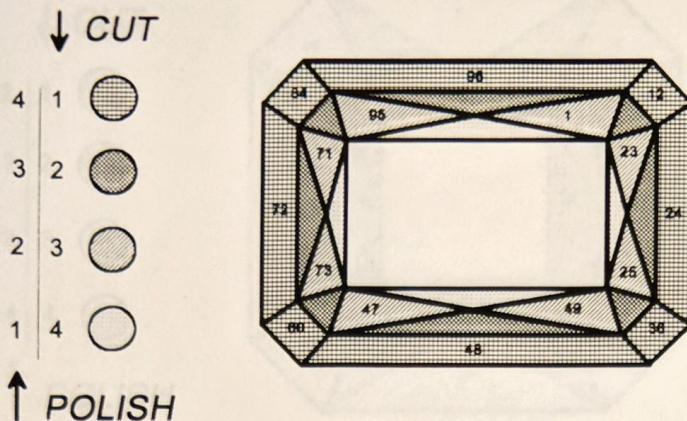
Cut and polish table in 45° dop holder.
Table should be about 50% of girdle width.

STAR BRIGHT CUT

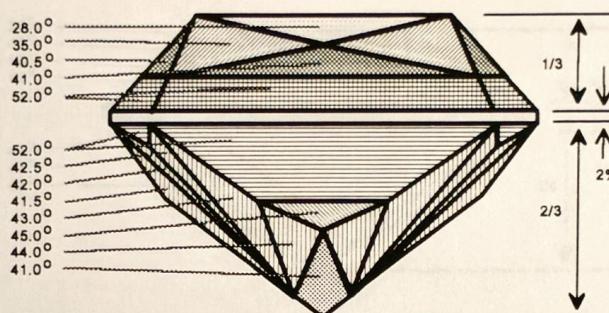
B. Livingston

No. 10

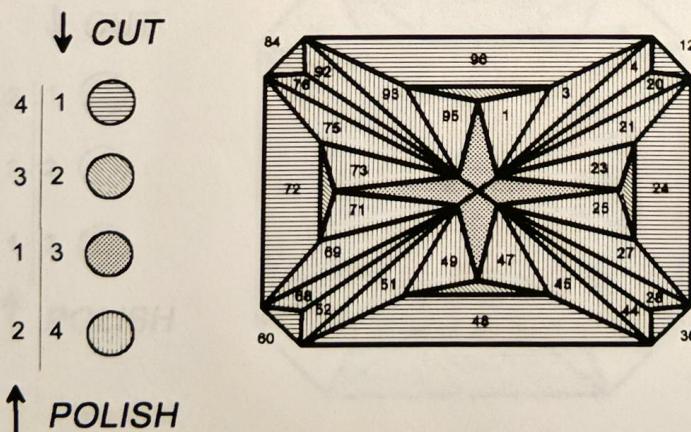
CROWN



SIDE VIEW



PAVILION



96 Index - Angles for Quartz
Ratio of Length to Width - 1.35:1

SHAPE GEM

Shape girdle by grinding at 90° Indexing 96-48, 24-72; 12-36-60-84.

ORDER OF CUTTING - Crown

GRIND 1st: Eight facets at 52.0° indexing 96-12-24-36-48-60-72-84.

GRIND 2nd:

Two facets at 41.0° indexing 96-48.

Four facets at 40.5° indexing 12-36-60-84.

Two facets at 38.0° indexing 24-72.

GRIND 3rd:

Four facets at 35.0° indexing 95-1, 47-49.

Four facets at 35.0° indexing 71-73, 23-25.

GRIND 4th:

Two facets at 28.0° indexing 96-48.

Two facets at 30.0° indexing 24-72.

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Eight facets at 52.0° indexing 96-12-24-36-48-60-72-84.

GRIND 2nd: Four facets at 45.0° indexing 96-24-48-72.

GRIND 3rd: Four facets at 41.0° indexing 96-24-48-72.

GRIND 4th:

Four facets at 42.5° indexing 4-44-52-92.

Four facets at 42.0° indexing 20-28-68-76.

Four facets at 43.0° indexing 3-45-51-93.

Four facets at 41.5° indexing 21-27-69-75.

Four facets at 44.0° indexing 1-47-49-95.

Four facets at 41.5° indexing 23-25-71-73.

(Depending on the shape of the stone, individual sets in 4th Grind may require adjustment to obtain meet points.)

See polishing order on left, using same angles and indices as with grinding.

TABLE

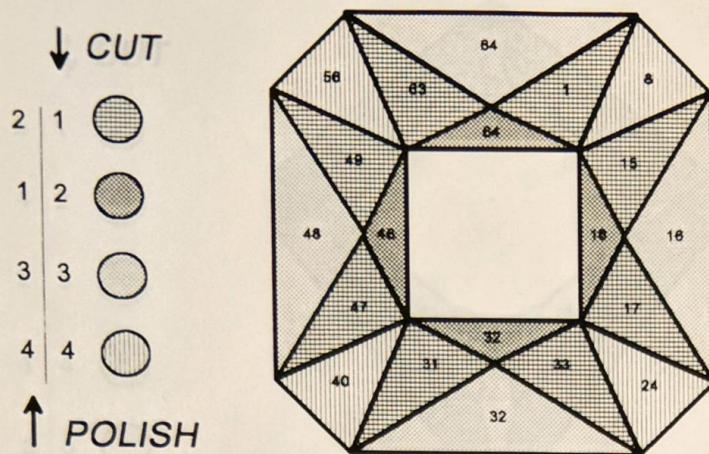
Cut and polish table in 45° dop holder. Table should be 40% of girdle width.

SQUARE SHALLOW SIMPLE CUT

B. Ruppel

No. 11

CROWN



64 Index - Angles for Quartz
64 Index - Angles for Quartz

SHAPE GEM

Shape girdle by grinding at 90° Indexing 64-16-32-48, 8-24-40-56.

ORDER OF CUTTING - Crown

GRIND 1st: Eight facets at 42° indexing 1-63, 15-17, 31-33, 47-49.

GRIND 2nd: Four facets at 27° indexing 64-16-32-48.

GRIND 3rd: Four facets at 50° indexing 64-16-32-48.

GRIND 4th: Four facets at 45° indexing 8-24-40-56.

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Four facets at 47° indexing 64-16-32-48.

GRIND 2nd: Four facets at 43° indexing 8-24-40-56.

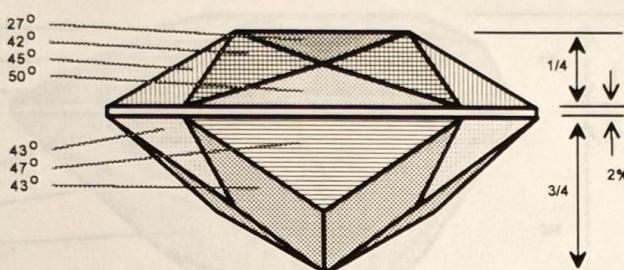
GRIND 3rd: Eight facets at 43° indexing 1-63, 15-17, 31-33, 47-49.

See polishing order on left, using same angles and indices as with grinding.

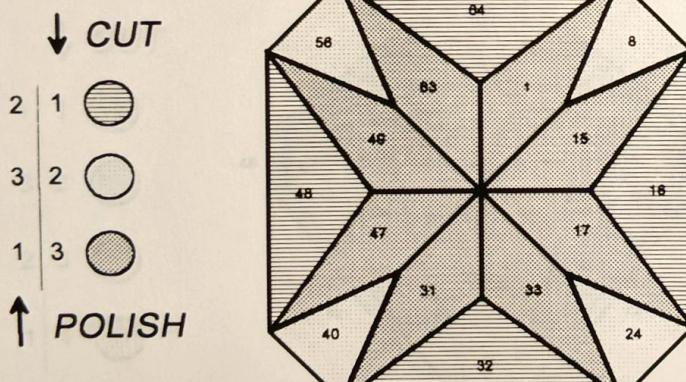
TABLE

Cut and polish table in 45° dop holder. Table should be about 40% of girdle width.

SIDE VIEW



PAVILION



See polishing order on left, using same angles and indices as with grinding.

TABLE

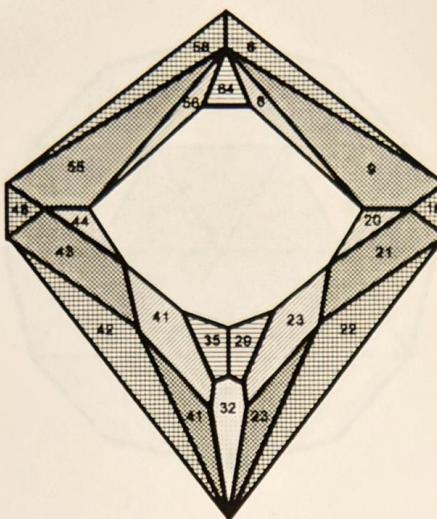
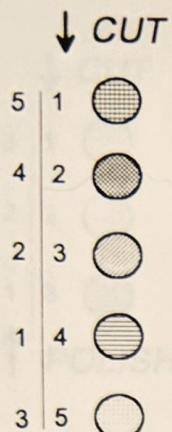
Cut and polish table in 45° dop holder. Table should be about 40% of girdle width.

BRILLIANT KITE CUT

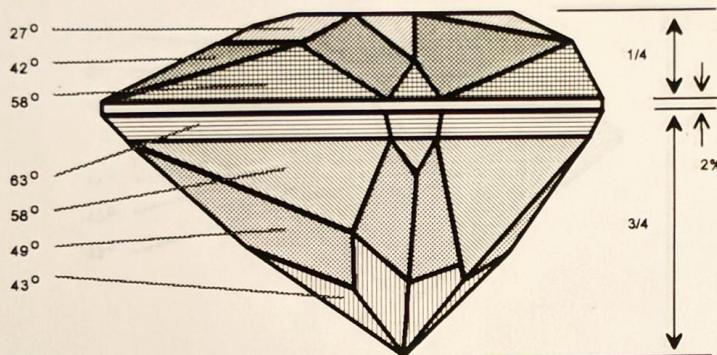
B. Livingston

No. 12

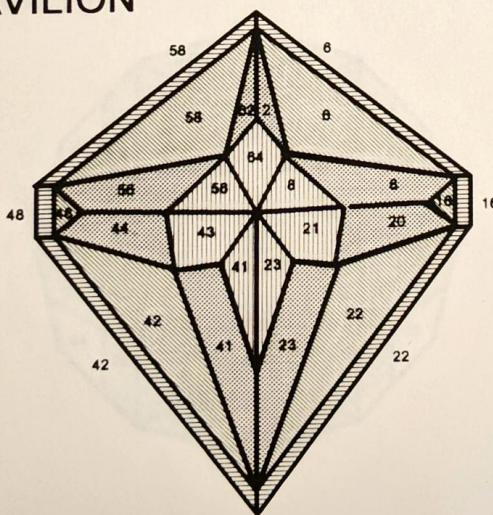
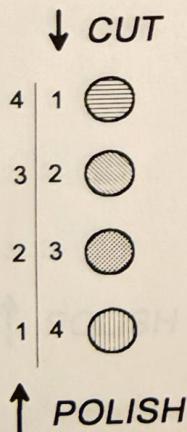
CROWN



SIDE VIEW (rotated)



PAVILION



64 Index - Angles for Quartz
Ratio of Length to Width - 1.25 to 1

SHAPE GEM

Shape girdle by grinding at 90° Indexing 6-58, 16-48, 22-42.

ORDER OF CUTTING - Crown

GRIND 1st: Six facets at 58° indexing 6-58, 16-48, 22-42.

GRIND 2nd: Six facets at 42° indexing 9-55, 21-43, 23-41.

GRIND 3rd: Six facets at 27° indexing 6-58, 20-44, 23-41.

GRIND 4th: Three facets at 10° indexing 64, 29-35.

GRIND 5th: One facet at 17° indexing 32.

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Six facets at 63° indexing 6-58, 16-48, 22-42.

GRIND 2nd: Six facets at 58° indexing 6-58, 16-48, 22-42.

GRIND 3rd: Eight facets at 49° indexing 2-62, 8-56, 20-44, 23-41.

GRIND 4th: Seven facets at 43° indexing 64, 8-56, 21-43, 23-41.

See polishing order on left, using same angles and indices as with grinding.

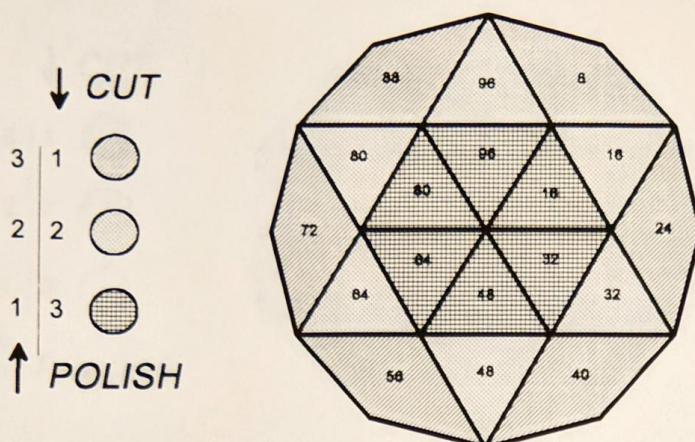
TABLE

Cut and polish table in 45° dop holder.
Table should be about 60% of girdle width.

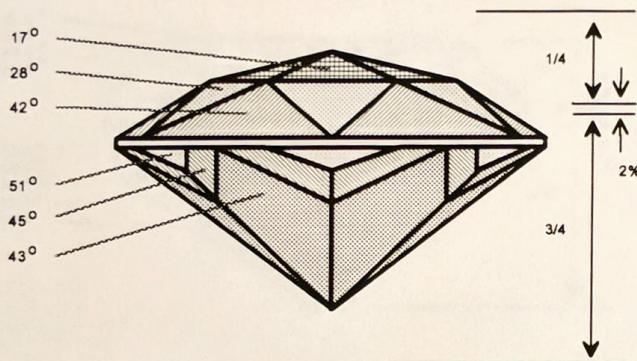
TWELVE TRIANGLE CUT

No. 13

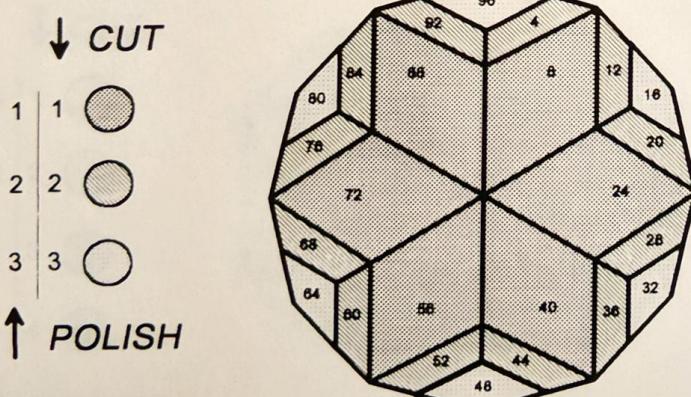
CROWN



SIDE VIEW



PAVILION



96 Index - Angles for Quartz

SHAPE GEM

Shape girdle by grinding at 90° Indexing
4-12-20-28-36-44-52-60-68-76-84-92.

ORDER OF CUTTING - Crown

GRIND 1st: Six facets at 42° indexing
8-24-40-56-72-88.

GRIND 2nd: Six facets at 28° indexing
96-16-32-48-64-80.

GRIND 3rd: Six facets at 17° indexing
96-16-32-48-64-80.

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Six facets at 43° indexing
8-24-40-56-72-88.

GRIND 2nd: Twelve facets at 45° indexing
4-12-20-28-36-44-52-60-68-76-84-92.

GRIND 3rd: Six facets at 51° indexing 96-16-32-48-64-80. (Adjust angle to fit if necessary.)

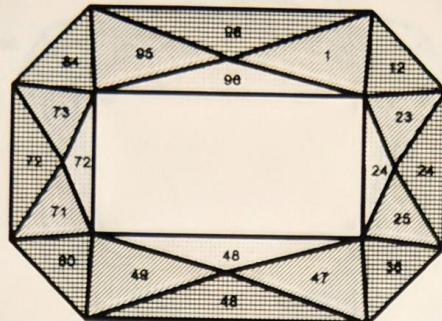
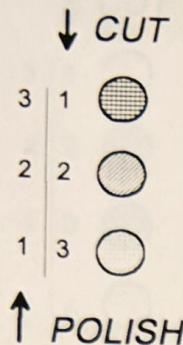
See polishing order on left, using same angles and indices as with grinding.

RECTANGLE - 408 CUT

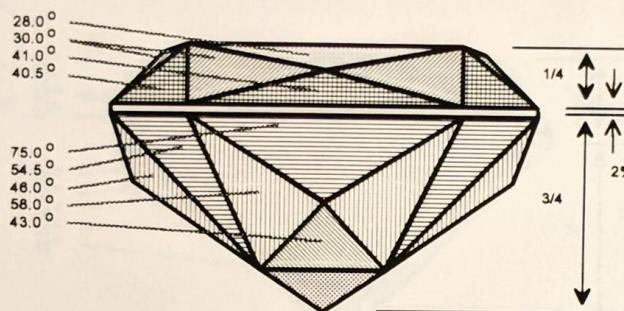
B. Livingston

No. 14

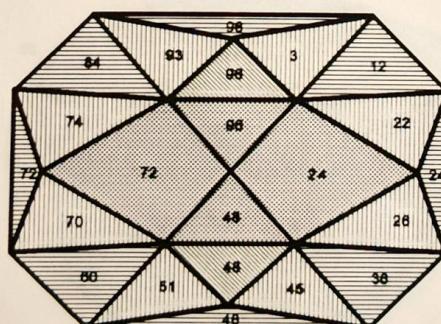
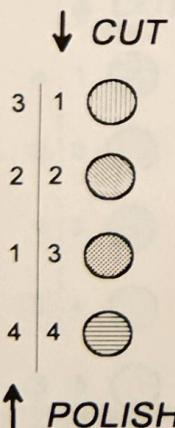
CROWN



SIDE VIEW



PAVILION



96 Index - Angles for Quartz
Ratio of Length to Width - 1.25:1

SHAPE GEM

Shape girdle by grinding at 90° Indexing 96-12-24-36-48-60-72-84.

ORDER OF CUTTING - Crown

GRIND 1st:

Two facets at 41.0° indexing 96-48.

Two facets at 38.0° indexing 24-72.

Four facets at 40.5° indexing 12-36-60-84.

GRIND 2nd:

Four facets at 35.0° indexing 95-1, 47-49.

Four facets at 35.0° indexing 71-73, 23-25.

GRIND 3rd:

Two facets at 28.0° indexing 96-48.

Two facets at 30.0° indexing 24-72.

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st:

Two facets at 75.0° indexing 96-48.

Two facets at 54.5° indexing 24-72.

Four facets at 53.0° indexing 12-36-60-84.

GRIND 2nd:

Four facets at 58.0° indexing 93-03, 45-51.

Four facets at 46.0° indexing 22-26, 74-70.

GRIND 3rd:

Two facets at 48.0° indexing 96-48.

GRIND 4th:

Four facets at 43.0° indexing 96-24-48-72.

See polishing order on left, using same angles and indices as with grinding.

TABLE

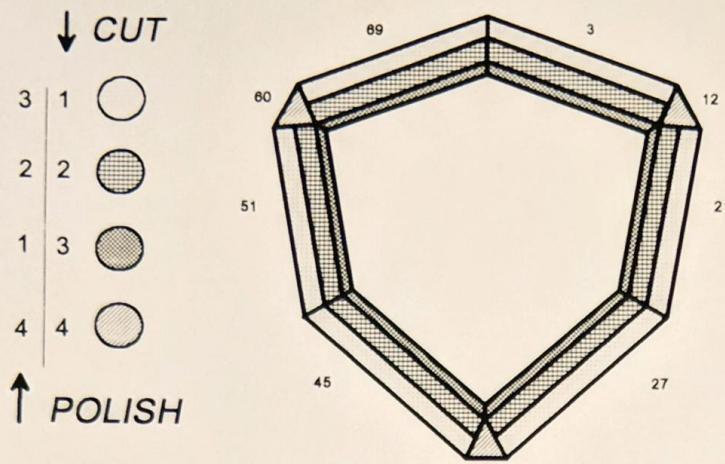
Cut and polish table in 45° dop holder. Table should be about 40% of girdle width.

HERALDIC CUT

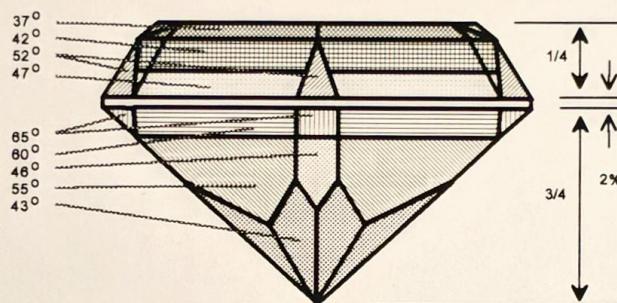
W. Dunbar

No. 15

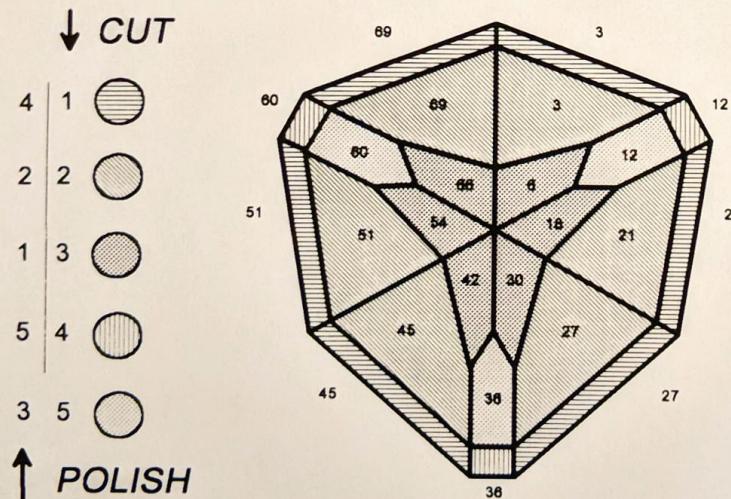
CROWN



SIDE VIEW



PAVILION



72 Index - Angles for Quartz
Ratio of Length to Width - 1:1

SHAPE GEM

Shape girdle by grinding at 90° Indexing 3-69, 21-51, 27-45; 12-36-60.

ORDER OF CUTTING - Crown

GRIND 1st: Six facets at 47° indexing 3-69, 21-51, 27-45.

GRIND 2nd: Six facets at 42° indexing 3-69, 21-51, 27-45.

GRIND 3rd: Six facets at 37° indexing 3-69, 21-51, 27-45.

GRIND 4th: Three facets at 52° indexing 12-36-60. (Adjust angle to fit)

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Six facets at 60° indexing 3-69, 21-51, 27-45.

GRIND 2nd: Six facets at 55° indexing 3-69, 21-51, 27-45.

GRIND 3rd: Six facets at 43° indexing 6-66, 18-54, 30-42.

GRIND 4th: Three facets at 65° indexing 12-36-60.

GRIND 5th: Three facets at 46° indexing 12-36-60.

See polishing order on left, using same angles and indices as with grinding.

TABLE

Cut and polish table in 45° dop holder.
Table should be about 75% of girdle width.